

Page 17, please cancel the heading "WO 2004/101626 . . . Claims", and substitute

--We claim:--

## IN THE CLAIMS

Claim 1 (**currently amended**). A method for the continuous polymerization of vinyl monomers to vinyl polymers, ~~characterized in that~~ wherein the polymerization takes place in a planetary roller extruder.

Claim 2 (**currently amended**). The method for continuous polymerization of vinyl monomers to vinyl polymers of claim 1, ~~characterized in that~~ wherein the vinyl polymers have a molecular weight  $M_w$  of more than 400 000 g/mol and/or polydispersities ( $M_w/M_n$ ) of greater than 5.

Claim 3 (**currently amended**). The method of claim 1, ~~or 2, characterized in that~~ wherein the polymerization takes place without addition of solvent.

Claim 4 (**currently amended**). The method of ~~at least one of claims 1 to 3,~~  
~~—characterized in that claim 1, wherein said planetary roll extruder is a~~  
hydraulically filled planetary roll extruder and the polymerization

- ~~a) takes place in a hydraulically filled planetary roller extruder,~~
- ~~b a)~~ is carried out by thermally induced decomposition of free radical-forming initiators,
- ~~e b)~~ takes place in the presence of 0 to 25% by weight, based on the vinyl monomers of a solvent, and/or
- ~~dc)~~ is carried out in the presence of resin or plasticizers in fractions of 0 to 30% by weight, ~~preferably in fractions of 0 to 10% by weight, more preferably in fractions of 0 to 5% by weight.~~

Claim 5 (**currently amended**). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 4, wherein~~ the hydraulic filling of the planetary roller extruder with reaction mixture takes place by means of

- a) the material exit aperture of the planetary roller extruder being situated higher than the maximum fill level of the reaction mixture within the roller barrels,

- b) central spindle and planetary spindles rotate counter to the material conveying direction normally induced by the helical gearing, the conveying of the reaction mixture within the planetary roller extruder then taking place by means of the preferred feed pump for the vinyl monomers.

Claim 6 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ the mixture of the vinyl monomers is preheated, prior to entering the planetary roller extruder, to temperatures of more than 50°C, ~~preferably to temperatures above 70°C, and more preferably to temperatures of more than 85°C.~~

Claim 7 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ the initiators are cooled and are added to the vinyl monomers not until immediately before entry of the monomer stream into the planetary roller extruder.

Claim 8 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ further initiators are added at at least one further site downstream of the process section of the planetary roller extruder.

Claim 9 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ the initiators for initiating the reaction have half-lives of 10 hours at temperatures of less than 120°C and are selected from the group consisting of the azo initiators, ~~from the group of the~~ organic peroxides, ~~or from and~~ mixtures thereof ~~of initiators of the stated groups, preferably those having a crosslinking efficiency of less than 20%, in particular those having a crosslinking efficiency of less than 10%.~~

Claim 10 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ initiators are added downstream of the process section, said initiators having ~~the initiators added downstream of the~~

~~process section have~~ half-lives of 10 hours at temperatures of more than 50°C and ~~are being~~ selected from the group consisting of the azo initiators, ~~from the group of the~~ organic peroxides, ~~or from~~ and mixtures thereof of initiators of the groups stated.

Claim 11 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ the vinyl monomers contain compounds and/or the reaction mixture which has already been initially polymerized is supplied with compounds which lower the molecular weight during the polymerization, said compounds being selected ~~preferably~~ from the group consisting of the nitroxyl compounds, thiols, TEMPO derivatives, thioesters, thiocarbonates, alcohols, ethers, and halogenated hydrocarbons, and are present ~~with particular preference~~ in ~~fractions amounts~~ of 0 to 5% by weight, ~~preferably 0 to 3% by weight, more preferably 0 to 1% by weight,~~ with respect to the vinyl monomers employed.

Claim 12 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ liquid resins, resin melts or plasticizers are added in ~~fractions amounts~~ of 0 to 30% by weight, ~~preferably of 0 up to 5% by weight,~~ to the reaction mixture after the beginning of polymerization.

Claim 13 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ more than 30%, ~~preferably more than 45%,~~ of the vinyl monomers are reacted to vinyl polymers.

Claim 14 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ the vinyl polymers are freed from their volatile constituents, ~~preferably inline.~~

Claim 15 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ the vinyl polymers are admixed, ~~preferably inline,~~ with further substances selected from the group consisting of such as

tackifying resins, fillers, crosslinkers and/or crosslinker assistants and, in this way, vinyl polymer compounds are prepared which find use as pressure-sensitive self-adhesive compounds.

Claim 16 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ the vinyl polymers are used in a downstream process stage as vinyl prepolymers for producing pressure-sensitive self-adhesive compounds.

Claim 17 (currently amended). The method of ~~at least one of the preceding claims,~~  
~~—characterized in that claim 1, wherein~~ the vinyl polymers ~~or the vinyl polymer compounds~~ are applied inline to the production operation to carrier materials in web form.

Claim 18 (new). The method of claim 4, wherein said fraction of resin or plasticizer is 0 to 10% by weight.

Claim 19 (new). The method of claim 18, wherein said fraction of resin or plasticizer is 0 to 5% by weight.

Claim 20 (new). The method of claim 6, wherein said temperatures are above 70°C.

Claim 21 (new). The method of claim 20, wherein said temperatures are above 85°C.

Claim 22 (new). The method of claim 9, wherein said initiators have a crosslinking efficiency of less than 20%.

Claim 23 (new). The method of claim 22, wherein said initiators have a crosslinking efficiency of less than 10%.

Claim 24 (new). The method of claim 11, wherein said compounds which lower the molecular weight are present in amounts of 0 to 3% by weight.

Claim 25 (new). The method of claim 24, wherein said compounds which lower the molecular weight are present in amounts of 0 to 1% by weight.

Claim 26 (new). The method of claim 14, wherein said vinyl polymers are freed from their volatile constituents inline.

Claim 27 (new). The method of claim 15, wherein the vinyl polymer compounds are applied inline to the production operation to carrier materials in web form.